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THE DIFFERENTIAL BLOOD COUNT*

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The differential blood picture combined with the total leucocyte count is one of the most used of clinical laboratory procedures. The medical profession is familiar with the conventional or Ehrlich division of white blood cells into the polymorphonuclear, the small lymphocyte, the large mononuclear, the transitional, the eosinophile, and the basophile. Most important has been the percentage of polymorphonuclears. A polymorphonuclear leucocytosis has for years been an invaluable aid in the diagnosis of acute infection. Hematologists have searched for a higher value to attach to the leucocyte picture.

In 1904 Arneth introduced his method whereby the polymorphonuclear neutrophilic leucocytes are divided into five classes based upon the number of lobes in the nucleus, maintaining that the younger forms had but a single lobe, older two, three, or four and the oldest five or more lobes. The following figures are considered normal for each class:

Class I.—one round or indented nucleus ... 5%
Class II.—nucleus with two lobes ... 35%
Class III.—nucleus with three lobes ... 41%
Class IV.—nucleus with four lobes ... 17%
Class V.—nucleus with five or more lobes ... 2%

For each of these classes several subdivisions are made. In many pathological conditions, particularly acute infections, an increase in percentage of young forms is shown. This is termed a shift to the left. An increase in percentage of older forms is a shift to the right.

Arneth has made a tremendous contribution to our knowledge of hematology. His system of classification, however, is quite complicated, many of his deductions have not been proven, and the method has never become popular for clinical purposes.

Pappenheim simplified Arneth's classification dividing the neutrophilic granular cells into three groups, the myelocytes, the metamyelocytes, and the mature forms.

Schilling formulated a classification of the leucocytes combining and modifying those previously mentioned. His system is relatively simple and highly practical. Although familiar in Germany for many years it has only become popularized in this country since the translation of Schilling's book into English in 1929. At the present time many of our hospital laboratories have adopted this classification for certain cases.

Schilling divides the leucocytes according to their origin into:

I. Granulocytes, originating from the bone marrow.
II. Lymphocytes, originating from the lymphatic system.
III. Monocytes, originating from the reticuloendothelial system.

1. Granulocytes: these are leucocytes showing true cytoplasmic granulations.

They are further divided into:

A. Basophilic leucocyte, or mast cell, constituting from 0 to 1% of the white blood cells, average 0.5%. This cell is about twice the diameter of the erythrocyte, has lobulated nucleus quite variable in shape, and shows intensely staining mostly coarse basophilic cytoplasmic granules. These cells are to be considered of little practical significance although it is claimed an increase represents a lessened resistance.

B. Eosinophilic leucocytes, constituting 2 to 4% of the white blood cells, average 3%. It is about twice the diameter of the erythrocyte, has a lobulated nucleus and acidophilic cytoplasmic granules. The percentage of these cells may be increased in certain parasitic and asthmatic conditions. It is the most sensitive of the leucocytes and the first to disappear from the peripheral blood in acute infections and the first to reappear as the infection subsides.

C. Neutrophilic leucocytes, constituting normally 54 to 72% of the white blood cells,

* Read before the Medical Society of Delaware, Dover, October 14, 1930.

average 67%. This cell is 1½ to 2 times the diameter of the erythrocyte and shows in the cytoplasm fine neutrophilic granulations. Schilling divides the neutrophilic leucocytes into the following groups:

1. Myelocyte. This cell has a round or oval nucleus and neutrophilic cytoplasmic granules. It is the parent cell of the neutrophilic leucocyte and normally is not found in the peripheral blood. The presence of the myelocyte indicates a severe bone marrow irritation. This is the type cell seen in splenomyelogenous leukemia.
2. Metamyelocyte, young form; or juvenile neutrophilic leucocyte. This cell represents an older form of the myelocyte. The nucleus instead of being round is sausage shaped to bean shaped and does not stain intensely. Juvenile cells may be found up to 1% but are usually considered as not normally present and when seen indicate severe bone marrow toxemia or irritation.
3. Metamyelocyte, older form; variously termed band, staff, or stab cell. This is an older cell than the juvenile type and normally constitutes from 3 to 5% of the white blood cells, average 4%. The nucleus is rather deeply stained, band shaped and bent in different T, V, or U types but not segmented. With the usual pyogenic infection it is this staff cell which first shows an increased percentage. It is this staff cell too, which best shows degenerative changes. The nucleus becomes hyperchromatic and pycnotic with deeply basic staining intranuclear bodies. This picture indicates a severe bone marrow inhibition with toxic changes in the marrow cells and inability to produce the change from the immature to the mature neutrophilic leucocyte.
4. Segmented neutrophilic leucocyte: corresponding to the polymorphonuclear neutrophilic leucocyte of Ehrlich and including classes II, III, IV, and V of Arneth. This classification takes into consideration only segmentation of the nucleus and is much simpler than the counting of lobes and also unquestionably this group constitutes the older types of neutrophilic leucocytes. These cells form on the average 63% of the leucocytes in normal blood.

D. Lymphocyte; constituting normally from 21 to 35% of the white blood cells, average 23%. These are cells with circular basic staining nuclei surrounded by narrow rims of light basic staining cytoplasm. The cytoplasm typically shows no granulations. The lymphocyte may be small, medium, or large, varying in size from less than the erythrocyte up to the diameter of the neutrophilic leucocyte. All are grouped together in one class since no significance can be attached to a preponderance of either size.

E. Monocyte. This represents the large mononuclear plus the transitional of the Ehrlich differential count and constitutes normally from 4 to 8% of the white blood cells, average 6%. The monocyte has more than twice the diameter of the erythrocyte and is usually much larger than the neutrophilic leucocyte. The nucleus is large, rather pale staining with indistinct linear markings and a tendency to become vesicular. The cytoplasm takes a light basic stain and typically shows no granules.

Schilling has a diagram for reporting the total and differential leucocyte count which he terms the hemogram. Here the four divisions of the neutrophilic granular leucocytes are grouped together and arranged in order of their maturity with the youngest or myelocyte on the left, then the juvenile metamyelocyte, the staff metamyelocyte, and on the right the segmented polymorphonuclear neutrophile. Most severe infections or toxemias cause an increase in the younger forms of neutrophiles and this picture is termed a shift to the left. An increase in the segmented or mature forms is termed a shift to the right. A shift to the right is seen in pernicious anemia, severe secondary anemia, beriberi, scurvy, and also in some normal individuals.

The following illustrate the value of the Schilling differential blood picture in some of the more frequent pathological conditions.

I. In acute localized pyogenic infections such as appendicitis the hemogram shows a well marked shift to the left with loss of eosinophiles. As the condition is relieved there is quickly an increase in segmented neutrophiles with the appearance of

eosinophiles and an increase in the percentage of lymphocytes and monocytes.

II. In uncomplicated ureteral calculus disease with colic there is little if any left shift though usually a leucocytosis.

III. Overwhelming infection with a fatal termination shows an extreme shift to the left and the prognosis may be indicated by the hemogram before the clinical signs assure such an outcome.

IV. In typhoid fever there will be usually during the first week an increase in the percentage of neutrophilic leucocytes with a shift to the left and loss of eosinophiles. After the first week the typical count will show a leucopenia, a lymphocytosis, a shift to the left and absence of eosinophiles.

V. Gonorrhoeal salpingitis, acute, reveals a moderate left shift with slight eosinophilia.

VI. In tuberculosis a shift to the left with absence of eosinophiles indicates an active progress with bad prognosis whereas little if any shift with lymphocytosis and normal eosinophile percentage indicates favorable progress and prognosis. Hemograms at frequent intervals constitute an excellent index of the progress of the disease.

VII. Massive hemorrhage in the acute form shows little if any nuclear shift while in the chronic exhaustive form there may be a shift to the left similar to that of severe acute infection.

Blood spreads for examination may be made upon coverglasses or glass slides. The coverglass method is recommended for exacting research, since the examiner may study all leucocytes in the drop of blood used. The glass slide method is simpler, more widely adopted, and is satisfactory. Clean slides are necessary and by passing them several times through a gas flame before use smooth spreads may be obtained. A spread should be made to cover about two-thirds the width of the slide, permitting examination of marginal cells together with cells in other areas.

Schilling recommends the Giemsa blood stain. In this country Wright's modification of the Romanowsky stain is used by most laboratories and with a good dye and careful technique is very satisfactory for the Schilling differential blood picture.

DISCUSSION

DR. L. B. FLINN (Wilmington): I think this is a subject which is deserving of great and general interest and it is a most timely topic. Schilling's book, as Dr. Earhart indicated, just translated in the last year, is most instructive and the cases cited there are also most instructive, and should stimulate us all to take more care in our blood examinations and particularly to make more frequent examinations. We have had this experience: feeling that frequent examinations were not made, that we were satisfied so often with one single examination, and at the time the hospital facilities were not equipped for making Schilling counts, over a period of about two years, in all the cases of pneumonia in children. We did, however, manage to have at times daily leucocyte counts with differential smear, the differential count being made the old way. The result, when we analyzed the last section of cases a year or so ago, was most instructive.

For instance, a case would come into the hospital with pneumonia, acutely ill, with marked dyspnea, capillary cyanosis, temperature 104 and pulse 110, and we would feel the child was desperately ill. In one case, for instance, with such a clinical picture, with a white count of 20,000 and with 70 per cent polymorphs and perhaps an eosinophilia. Next day the clinical picture presented the same, but the blood examination showed the leucocytes had gone up to 25,000 or 20,000 and with 1 or 2 per cent of eosinophils. There was a crisis the next day, and the child was well thereafter.

On the other hand, in a case not so sick clinically, but with a blood picture not so favorable, on the second analysis there was a drop in polymorphs and a disappearance of eosinophils, and the child died.

Also several cases came in with a leucopenia, which we have all been taught, I think, to interpret probably as a bad prognosis; on the other hand, we have seen cases of acute appendicitis without gangrene, with a leucopenia, which have gone through with a normal convalescence, but these cases of pneumonia with leucopenia which we followed with successive counts were interesting. Those who got well showed not only a tendency to increase daily in the number of white cells, but also a tendency to increase in the number of polymorphs and in the eosinophiles.

If we had Schilling's count in these cases, we could predict with more certainty and assurance

these prognoses. I cite these few instances to indicate that even when done in a comparatively incomplete way, more frequent and detailed blood examinations are of real, practical importance.

DR. OLIN S. ALLEN (Wilmington): I should like to ask the Doctor whether he doesn't think what we consider normal, from 7,000 to 10,000, isn't a little low. In so many of these chronic cases, not forgetting the acute cases, I used to get very much excited when I got a leucocyte count of 15,000 or 16,000, and I felt sure they needed an operation of some kind, appendicitis, gall bladder, etc., or that they had some focus of infection. Now I find so many of them 15,000, 16,000, 17,000, where I actually can't find any focus of infection. What are we to believe? Does the chemistry of the body become so upset that it will give us a leucocytosis of say 16,000 to 20,000, and then as you repeat the examinations over the course of ten days, or two or three weeks, they gradually drop down to normal and remain normal?

I have often wondered. We consider over 10,000 as being abnormal. We have to get busy and find some cause of the trouble. We get very much excited, that is, I used to, although I don't any more, probably not enough, but I have been wondering recently if 10,000 isn't a little low, and that we should consider higher as normal. I don't know that that is true, but I should like to know what you have to say about it.

DR. E. S. EARHART: Dr. Allen brings up a very important point in asking what we consider the high limit of normal for the leucocyte count, and also under what conditions we may consider this normal.

We may establish what we can consider as a basic condition for the patient at the time of study, and this would apply very fitly to the chronic cases. A leucocyte count of 8,000 is considered the upper limits of normal in a patient at rest before breakfast in the morning. A meal, no doubt, causes a variable degree of leucocytosis. Physical or mental stress will cause a leucocytosis. Cardiac lesions with peripheral stasis will cause a leucocytosis. Technical errors, such as a very gentle prick of the finger or the ear, and the use of a great deal of pressure by the technician will cause the picture of leucocytosis and will increase that particular count.

In chronic cases it is to be recommended that the count be made under those basic conditions of rest, preferably in bed, the examination being made on an empty stomach, preferably before breakfast.

EXFOLIATIVE DERMATITIS FOLLOWING THE USE OF HEAVY METALS IN ANTI-SYPHILITIC TREATMENT*

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Lees, Stokes and Cathcart have written excellent summaries of the various theories accounting for dermatitis following the use of bismuth, iodides, mercury and arsenic in the treatment of syphilis. The following causes are mostly taken from their classifications:

(1) BACTERIAL

(a) Contamination of the solutions—Muller suggested that the skin lesions were produced by the presence of living or dead micro-organisms in the solutions administered.

(b) Jarisch-Herxheimer reaction — Pinkus thought that the destruction of the spirochaetes by arsenic or whatever metal used, set free toxins which caused a general intoxication with cutaneous hyperemia.

(2) ARSENICAL INTOXICATION

(a) Vasculo-toxicity of Arsenic—It was recognized by Pistorious that arsenic has a vasculodilatory effect. Possibly arsenical dermatitis is due to an exaggeration of this action.

(b) Damage to the Suprarenals—Browne and Pearce found at autopsies on fatal cases of arsenical dermatitis that the adrenals were damaged, and suggested that it was this injury to the suprarenal glands brought on by the arsenic, that caused the skin lesions. The damage to these organs hinders the action of adrenalin, which counteracts the vasculo-toxicity of the arsenic.

(c) Renal damage—Schamberg considered that when mercury was simultaneously administered with arsenic, the kidneys were damaged, resulting in an inability to excrete arsenic, so that it was retained, causing these cutaneous manifestations of retention. Numerous cases, however, are on record in which no mercury has been given.

* Read before the Medical Society of Delaware, Dover, October 14, 1930.

(d) Metallic Over-oxidization—Over-oxidization of the tissues by arsenic is considered by McDonagh to be the essential factor in arsenical dermatitis and led to his introduction of intramine, and its successor, contramine.

(e) Thyroid changes—Sramek thinks that the skin changes are from metallic damage to the thyroid, and quotes cases which recovered under treatment with thyroid extract.

(3) HEPATOTOXIC

(a) Syphilitic Injury to the liver—Syphilitic hepatitis producing inability to metabolize arsenic is propounded by Glombitze as basis of the skin lesions.

(b) Damaged "Proteopexic" Function — Widal believes that arsenic, by damaging the proteopexic function of the liver, produces various anaphylactic phenomena.

(4) ANAPHYLACTIC THEORIES

(a) Sensitivity or Allergic Instability — Moore and Keidal consider that either the metal or some bacterial proteins from a focus of infection become sensitizing agents, and the action of arsenic, which is vasculo-toxic, on this sensitized subtrate is to produce inflammation.

(5) NERVOUS THEORIES

Lees noticed that most of his patients with exfoliative dermatitis were of nervous temperament and that many cases were complicated by peripheral neuritis, so that it is possible that the nervous mechanism plays a part in this disease.

CLINICAL COURSE OF EXFOLIATIVE DERMATITIS

The first effect of the dermatitis is generalized erythema caused by the dilation of the cutaneous blood vessels. This vasodilatation leads to edema of the skin. Later the superficial dermis exudes and finally becomes shed.

Prodromal Stage—Milian divides the signs of arsenical and bismuth intolerance into mild and grave.

(a) Mild—Subjective sensation of taste and smell resembling garlic. Hypersecretion of certain glands, especially the lachrymal. Increased intestinal secretion causing diarrhea. Excessive secretion of the choroid plexus—producing severe headache. Nitritoid crises with swelling and congestion of the face. Slowing of the pulse. Prolonged vomiting, rigor or pyrexia. Buzzing in the ears. Erythema, pruritus, pains in the back. Recurrence of the above signs of intolerance with succeeding injections.

(b) Grave—Persistent vomiting; scarlatiniform erythema; jaundice.

The eruption—As a rule, the first sign of true dermatitis is an erythema on the backs of the wrists and ulnar side of the forearms, which very rapidly becomes generalized. There is often an associated conjunctivitis with pharyngitis, and sometimes laryngitis. The face may become very edematous so that the patient may be unable to open the eyes. The temperature is usually between 100° and 104° F., and the pulse may become very irregular and rapid. Moderate leucocytosis with sometimes an eosinophilia is the rule. The erythema then passes into a vesicular stage which is quite likely to become pustular. The skin gets covered with scales which desquamate from the surface. On the hands and feet the scales tend to be much coarser, and peel off in large keratotic plaques. The hair and nails may be shed. The lesions are not indurated, and in the earlier stages may weep copiously. Points of pressure and of excessive moisture are very prone to develop secondary infection. The scales become more brawny, and the skin shows dark brownish-red pigmentation, and finally dries and becomes atrophic and inelastic. Convalescence and recovery are slow, and boils and recurrences of the cutaneous lesions owing to sweating are common.

Complications — Broncho-pneumonia is the most common cause of death in cases of arsenical dermatitis. Peripheral neuritis of one or several nerves may complicate this disease. Icterus and purpura are rare accompaniments.

Treatment—Arsenical dermatitis is a preventable condition and should never occur in severe form. Prevention of severe dermatitis is brought about by the following:

(a) Prophylaxis.

(b) Abortive treatment.

Prophylaxis—The patient should be thoroughly examined with special attention paid to age, sex, history of previous skin diseases, kidney diseases and any areas of focal sepsis. The initial dose may not be large, the exact amount depending upon the sex and weight of the patient. The drug employed must be of reliable manufacture and is to be given slowly with strict aseptic technique.

Milian believes that before an injection of arsphenamine the preceding diet should aim at rendering the blood strong in basic substances so

that the arsenic may not disturb the reaction to the blood. He, therefore, recommends a diet of milk and vegetables, with restriction of meat, fruit and acid salads.

Abortive treatment—This when applied to a case showing prodromal symptoms prevents the full development of arsenical intolerance and enables arsenical therapy to be continued under extra-careful supervision. The main prodromal symptoms will be enumerated:

(1) Nausea, malaise and vomiting after an injection of arsphenamine, bismuth or mercury.

(2) Itching.

(3) Erythema which is not a Herxheimer reaction.

(4) Papular rash on backs of wrists and ankles—this is the beginning of true arsenical dermatitis.

On the development of any of the above symptoms, arsenical, bismuth or mercurial treatment should be stopped for at least seven days. Give contramine 0.125 gms. intramuscularly on alternate days. The patient should be kept in bed and the bowels should be kept well open with saline purges or enemas.

CURATIVE TREATMENT

The active treatment of severe cutaneous accidents following the use of heavy metals in antisyphilitic treatment was formerly symptomatic; the metal once injected could not be recovered. Following the work of Ravaat of France, and McBride and Dennie of this country, arsenic and other heavy metals are now precipitated into soluble compounds by intravenous injection of sterile solutions of pure sodium thiosulphate as follows: On the first day 0.15 in 10cc of water and each day increase by 0.15 gm. until 1 gm. is given on the seventh day in 20cc. of water and in doses of 1 gm. each day thereafter as long as indicated. When the intravenous route is impossible, oral and rectal route should be used, but these are poor substitutes.

In the types of weeping dermatitis starch baths and alkaline solutions and unguents to obviate the crust formation, seem to be grateful to the patient.

A case illustrative of exfoliative dermatitis has just recently come under my care. A white man, 35 years of age, 15 years ago had his initial lesion, a chancre. At that time he received three "shots" and continued to take mercury by mouth for five months until he developed a severe stomatitis. He was pronounced cured and felt perfectly well until three years ago, when he began to develop arthritis, and at the same time became very nervous. He was treated symptomatically for several months, and in August of 1928 a blood Wassermann was taken and found to be four plus. Then one injection of arsphenamine was given weekly for three weeks. In October of the same year, another series of six injections was begun—a rest of one month, and then another series of six injections was given. Following this he rested two months. In February of 1929 another four plus Wassermann was returned and injections of arsphenamine were started again, one being given weekly for 60 weeks until March of 1930. In May a spinal fluid Wassermann was done, but was found to be negative, though the blood Wassermann remained four plus. In June, 1930, injections of bismuth were started, twice weekly for six weeks. In August he began with nausea; he was taken while working in the field, started to the house, became blind and had to lie down before reaching the house. A few days before this, he had noticed a fine rash, which looked like sunburn, on the back of the wrists, arms, back of the neck, and on the face. This continued until the entire body was covered.

A few days later the erythema passed into the vesicular stage, which soon became pustular. The face, hands, arms and parts of the body were covered with pustular crusts. In this condition be came under my care and was immediately admitted to the Kent General Hospital, August 24th, 1930.

In a few days following the treatment prescribed above, he began to show marked signs of improvement, and at the end of three weeks was discharged; the body being practically clear of the scarlatiniform rash. After being at home two weeks the erythema suddenly reappeared, the face became endematous and the patient was readmitted to the hospital before a complete repetition of the first attack, which was much more severe than the second recurrence has been. At once treatment was begun and after the second injection of 1 gm. of sodium thiosulphate the edema began to lessen and now I feel sure that he is slowly but surely recovering.

(Concluded on page 33)

EDITORIAL

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ABOUT COLLECTIONS

The report of the Committee on the Physicians' Credit Bureau of the New Castle County Medical Society, which was presented to the Society last month, was not one to impress an economist or thrill a medico. In brief, it showed that approximately $1,100 had been collected out of some $26,000 worth of claims placed with the Bureau; in other words, after a year's efforts, only four per cent of the claims had been collected. Surely, the most ardent supporters of the Archer plan must now realize that their original enthusiasm was none too well founded, for despite the age of some of the claims, and despite the general financial situation, a return of only four per cent is, to put it mildly, a niggardly return.

It was evident to some of the members, and in fact, to some of the committee, that neither the type of organization nor the methods proposed could reasonably be expected to be successful. Time seems to have borne out the minority fears and predictions, and we are under the impression that this minority is now a majority of the Society. The new 1931 Committee therefore faces the problem of analyzing critically just what has been accomplished, just what and where the failures crept in, and if possible, why and how. And having done this, should the committee consider it desirable to recommend to the Society that a change be made, it must, ipso facto, be prepared to make definite recommendations for a better plan, or at least one that offers better prospects.

Should this latter possibility eventualize, we are reasonably sure that the committee will consider most seriously the so-called "Memphis Plan," the essentials of which are: a credit bureau incorporated, owned, and operated by the Society; a trained credit manager in full charge, with trained, bonded collectors "on the street"; a membership fee of perhaps $35 for the first year, (present service costs $60), with diminishing fees as the bureau becomes better established; commissions to the bureau probably not to exceed 35% in any case, and in most cases only 15%; and a hammer and tongs policy that makes the debtor respect the doctor and his collection bureau. This plan has performed wonders in Memphis, Birmingham, and Washington, and while Wilmington may have more than its share of confirmed dead beats and hard-boiled eggs, the experience of other cities gives assurance that the returns would be many times the 4% return of the present plan.

The secret of the success of the Memphis Plan lies in its employing only trained, competent workers, who can make a decent living for themselves, and in addition get the doctor the most of the money due him. This part of the Plan is vital, and cannot be sacrificed.

There are a few private collection agencies that are reliable, but most of them are not, and even the reliable ones are not always efficient. The following editorial from the December issue of the *Wisconsin Medical Journal* illustrates this point:

MORE COMPLAINTS

More and more complaints are coming to the desk of the secretary of the methods and service of collection agencies.

A recent case involved a justice court suit brought by a collection agency upon a fifty-dollar physician's account. The agency entrusted the matter to a clerk, who was not a lawyer, whereas the defendant was represented by an attorney. The services had been rendered more than two years before the suit, but nevertheless the attorney for the defendant set up a counter claim for $200, the limit of the justice's jurisdiction, for alleged malpractice.

The physician knew that the counter claim for malpractice, asserted for the first time after suit, was unfounded, but knew also the loss of time and unpleasantness attached to defending such a claim, and instructed the collection agency to defend with the statute of limitations. But the clerk did not know how to do this, with the result that the patient's uncontradicted testimony was taken of the malpractice, and judgment of $150 and costs was about to be entered against the physician.

Just in time, the physician became aware that something was wrong, and consulted his State Medical Society who immediately placed the matter in the hands of a competent attorney. This attorney secured delay, straightened out the procedural mix-up, and got the counterclaim dismissed and judgment entered for the physician for fifty dollars and costs.

It is just as logical for the sick to go to laymen for medical relief as it is to place legal matters in the hands of a lay collection agency.

So great need does there appear to be for some reliable agency in the collection field, that will have an understanding of physicians' accounts and competently handle them, that the entire matter is being investigated to ascertain if a practical solution along that line can be worked out.

Indeed, we have been impressed by the large number of "collection" editorials that have appeared in medical journals this past year. The problem is a pressing one, everywhere, but the most successful answer seems to be found in the Memphis Plan.

FADS AND FEMMES

Early in November the women who constitute the membership of the Washington Heights Century Club, of Wilmington, received a printed card inviting them "to attend a series of vitally important and intensely interesting free lectures" to be given in the duPont-Biltmore Hotel by "Benjamin Gayleord Hauser, the eminent young Viennese food specialist," who would teach them "how to be healthy, young and beautiful, through application of his own method of harmonized food selection." The card, in a woman's handwriting, was signed: Washington Heights Century Club.

About the same time, there appeared in the Wilmington *Every Evening* the following reader:

UNIQUE FREE SERVICE AT NATURAL FOOD CENTRE

At the Natural Food Centre, "A Whole Food Institution," at 913 Orange St., where exclusively life-laden foods, delicious, and vibrant with chemical elements of an organic nature, are sold, Louis H. Collison, proprietor, is adding a new department.

Monday, the consultation department made its bow to the public. This new branch of the service will endeavor to assist the people of Wilmington and vicinity to make wise selections of food for the fitting of their specific needs. This new department will be in charge of Dr. Earl Broadbent.

Feeling certain that neither of these "experts," Hauser and Broadbent, was qualified to discuss, medically, anything more serious than the weather, we addressed an inquiry to the Bureau of Investigation of the American Medical Association, and their reply, fully confirming our suspicions, is as follows:

Your letter of November 28 asking for information on Benjamin Gayleord Hauser and Earl Broadbent has been referred to me.

Benjamin Gayelord Hauser used to conduct a rather obvious piece of quackery in Chicago under the name of the "New School of Health." More recently, however, he seems to have gone to New York City, where he apparently operates the Hauser Institute, Inc., at 580 Fifth Avenue.

Hauser has gone around the country promoting diet fads and giving alleged health lectures. His advertisements have described him as a "nationally-known authority on food science." It is hardly necessary to say that this claim is wholly false. He has also been described as the "internationally famous young Viennese food scientist," a claim equally without foundation.

On some of Hauser's stationery he has put M. D. after his name. There is no evidence that we have been able to find—and we should find it if there were any—that Hauser was ever graduated by any reputable medical school or has been licensed to practice medicine in any State in the Union.

The Chicago telephone directory used to classify Hauser as a naprapath, but his name no longer appears in that directory; neither does the name of his "New School of Health."

In December, 1925, a Chicago physician told us that Hauser was exploiting what he called a "vegetable salt." Hauser's particular line of quackery seems to be dietetics. He is said to hold "private classes" and one of the "profound subjects" dealt with in these classes is: "How to Wash Out All Disease by Eating God's No. 6 or Dissolving Foods."

Still another of Hauser's activities seems to have been the "Illinois INA Food Factory," which sold a table salt at $1 a pound. The INA products were, apparently, a later name for some of the food quackeries previously exploited by one M. E. Yergin, who has long been connected with diet fakery and chiropractic. We are enclosing a reprint, "Exploiting the Health Interest," on page 17 of which you will find reference to Yergin.

Early in 1929 Hauser was working his scheme down in Florida, where he was arrested, and our understanding is that rather than meet the charge preferred by the authorities, Hauser agreed to leave the state.

From the Hauser Institute, New York, this quack is

apparently selling alleged "home study courses" in the "Hauser Method of Harmonized Food Selection." This comes at $25 cash or $30 on the installment plan.

We have no record of the "Natural Food Center" or of Dr. Earl Broadbent. It is probably not necessary to tell you that there is no record either of anyone by the name of Earl Broadbent having been graduated by any reputable medical school or being licensed to practice medicine in any State in the Union.

The reference to Yergin shows him to be a typical food faddist. "He put forward a 'True Musical Therapy' whereby with the aid of a piano 'thoroughly in tune, having high quality strings,' it was possible to produce vibration notes corresponding to the chemical elements! Thus we read:

"'Take, for instance, mercury and chlorine and strike the keys on a well-tuned piano, corresponding to these chemicals on the key Chart—D in octavo two, and B in octavo seven, as marked—and after a few seconds the sensitive persons will respond with a noticeable flow of saliva in the mouth.

"'Keep the keys sounding for a few moments and it will start a bowel action.'"

Sillier rot could not be written in any language, yet this is merely a sample of the kind of quackery that the officers of a reputable women's club invited their members to hear, and sad to relate, we are informed that the attendance was fairly large. Sadder still, some women who otherwise show signs of human intelligence actually fell for this "Hauser Method," with its "harmonized food selection," "delicious Hauser potassium broth," "type analysis instruction," "no hit-and-miss selection," of course, at so much per.

Our reason for dwelling at such length upon this affair is just this: the Woman's Auxiliary of the Medical Society must see to it that such a ludicrous yet pathetic performance is not repeated by any woman's club or organization in this State. In the instant case, we doubt if the club mentioned was the sole sponsor of this edifying spectacle, but whether it was or not, the women of Delaware are entitled to protection against such quacks and their lecherous schemes, and, together with the doctors, it is up to the women of the Auxiliary to provide this protection. There is hardly a woman's organization worthy of the name that does not have in its membership somebody who belongs to the Woman's Auxiliary of the Medical Society, and when any invitation or proposal such as the one above comes along, report it promptly to the officers of the Medical Society of Delaware, who will immediately wire the A. M. A. headquarters for full information. We must stop these quacks from coming here, or else expose them at their own meetings.

EDITORIAL NOTES

DEAR DOCTOR:

THE JOURNAL and the Cooperative Medical Advertising Bureau of Chicago maintain a Service Department to answer inquiries from you about pharmaceuticals, surgical instruments and other manufactued products, such as soaps, clothing, automobiles, etc., which you may need in your home, office, sanitarium or hospital.

We invite and urge you to use this Service.

It is absolutely *free* to you.

The Cooperative Bureau is equipped with catalogues and price lists of manufacturers, and can supply you information by return mail.

Perhaps you want a certain kind of instrument which is not advertised in THE JOURNAL, and do not know where to secure it; or do not know where to obtain some automobile supplies you need. This Service Bureau will give you the information.

Whenever possible, the goods will be advertised in our pages but if they are not, we urge you to ask THE JOURNAL about them, or write direct to the Cooperative Medical Advertising Bureau, 535 N. Dearborn St., Chicago, Illinois.

We want THE JOURNAL to serve *you*.

Those who are seriously interested in any phase of cancer will welcome the new *American Journal of Cancer*, the first number of which has just been received. This is a quarterly, continuing the Journal of Cancer Research, and is now the official journal of the American Association for Cancer Research, and of the American Society for the Control of Cancer. The new *Journal* will cover the entire field of cancer: research, clinical, educational, public health, etc. The first issue contains 310 pages of text, beautifully illustrated, and 245 pages of abstracts. As heretofore, the editor is Dr. Francis Carter Wood, at the Institute of Cancer Research, Columbia University, New York City. The subscription is five dollars per annum; the business office is at 654 Madison Avenue, New York City.

In the midst of all the flubdub of political chatter and barter now going on anent the Klair Law the profession, as a profession, must constantly bear in mind the position assumed by the State Medical Society, viz: modification so that the physician shall have the right, under *proper* supervision or restriction, of prescribing alcoholic medicinals. The lay demand for the absolute repeal of the Klair Law is increasing, but the physicians should studiously avoid all controversy on this phase of the question. Remember, our plea in no way concerns prohibition; we are arguing solely for the legitimate practice of medicine.

MANAGEMENT OF FRACTURES INVOLVING PARANASAL SINUSES

John J Shea, Memphis, Tenn. (*Journal A. M. A.*, Feb. 7, 1931), states that fractures involving the sphenoidal sinus are fortunately rare, but their care should be along the same lines of common sense as in ethmoidal fractures. The rhinologist is best prepared to treat fractures involving the paranasal sinuses. The reduction of the fractures and the protection of the sinuses are the underlying therapeutic principles.

WOMAN'S AUXILIARY

On January 13th Mrs. Taleasin H. Davies, of Wilmington, entertained the members of the Woman's Auxiliary with a most delightful tea, at her home.

An Executive Committee meeting was first held regarding the plans for the convention in May.

A guest of the afternoon was Mrs. Allen, of the Philadelphia Auxiliary, who spoke to us of the founding of that Auxiliary.

Mrs. Tomlinson, our president, is spending much time and energy promoting the Delaware Auxiliary's share in the A. M. A. convention. Through the courtesy of Mr. and Mrs. Pierre du Pont and our president's efforts, a trip through the Longwood gardens has been planned for National Auxiliary delegates and guests. Delaware has been assigned two more important positions: Mrs. W. H. Kraemer has charge of the Longwood arrangements, and Mrs. C. E. Wagner has assumed chairmanship of the ticket committee.

We wish to call the attention of the Auxiliary to the editorial entitled "Fads and Femmes," which will be found on page 28 of this issue of the JOURNAL. This editorial points out one of the most important functions of the Auxiliary, i. e., the exclusion of all irregular practitioners and quacks from all the meetings of women's organizations in this state, and also, so far as possible, the nullification of any meeting, lecture, etc., that any irregular or quack may organize in his own behalf. The various county units of the Auxiliary should take prompt steps to organize its members into "vigilance squads" or individual "vigilantes." This is a duty the auxiliary owes to the profession and to the State.

MISCELLANEOUS

Science in 1930

MEDICINE

The beginning of the conquest of Addison's disease by the hormone of the adrenal cortex gland in 1930's addition to the list of medical conquests through the advancing knowledge of endocrinology, which has in past years given insulin for use in diabetes and liver for use in pernicious anemia.

A hormone from the cortex of the suprarenal glands was isolated by Drs. W. W. Swingle and J. J. Pfiffner of Princeton University and used by Drs. Leonard G. Rowntree and C. H. Greene of Mayo Clinic to treat hopeless victims of Addison's disease, in the same way that insulin affects the coma of diabetes. Dr. F. A. Hartman and Dr. K. A. Brownell of the University of Buffalo also obtained an extract of the same gland.

The filterable virus germ which causes multiple sclerosis, or "creeping paralysis," was discovered with the aid of a special ultra-microscope at a magnification of 1,800 diameters by Sir James Purves-Stewart and Kathleen Chevassut of the Westminster Hospital, London.

An artificial lung or respirator was invented by Drs. Philip Drinker and L. A. Shaw of the Harvard School of Public Health, to keep alive patients whose breathing muscles are paralyzed in infantile paralysis or who are victims of gas poisoning.

A new method for studying the microscopic growth of living tissue in a warm-blooded animal was developed at the University of Pennsylvania School of Medicine.

An enzyme which has both protective and curative action on Type III pneumonia in mice, and possibly also in man, was extracted from a bacillus found in the soil of New Jersey cranberry bogs.

Vitamins in sufficient amounts will prevent infection of animals, and possibly man, with leprosy, it was reported by Dr. J. Shiga, dean of the Imperial Medical Faculty, Seoul, Korea.

Fever produced by short radio waves was found helpful in the treatment of paresis by Prof. W. T. Richards of Princeton.

The National Institute of Health was created by act of Congress replacing the Hygienic Laboratory of the U. S. Public Health Service.

A new species of the meningococcus organism, cause of meningitis, was found by investigators of the U. S. Public Health Service.

Cancer studies were reported by numerous investigators. Drs. Walter B. Coffey and John B.

Humber of San Francisco announced a method of treating cancer by injection of a glandular extract. Drs. Shigemitsu Itami and Ellice McDonald of the University of Pennsylvania reported they were unable to cure cancer in mice by this method. Dr. Frederick S. Hammett of Philadelphia found that the application of partly oxidized sulfur compounds caused tumors in mice to disappear.

Postgraduate demonstrations of cancer, in which radiologists, pathologists and other specialists tested and increased their diagnostic ability, were held under the auspices of the Surgical Pathological Laboratory of the Johns Hopkins University.

Experiments proving that the common cold is caused by a filterable virus were reported by two groups of investigators: Dr. Gerald S. Shibley, Katherine C. Mills and Dr. A. R. Dochez of the Columbia University College of Physicians and Surgeons and the Presbyterian Hospital of New York; and Drs. Perrin H. Long and James A. Doull of the Johns Hopkins Medical School.

An extensive outbreak of psittacosis, popularly known as parrot fever, occurred in the United States and many other countries. In this country 169 cases with 33 deaths were reported. Investigators of the U. S. National Institute of Health made an extensive study but did not find the *Bacillus psittacosis* which a French scientist, E. Nocard, had reported as the causative germ in 1892. They concluded that the disease was caused by a filterable virus. They did find an organism which might be the cause of the disease, but it was not *B. psittacosis* or any other member of that germ family.

A phenol compound tri-ortho cresyl phosphate was found by the U. S. Public Health Service to be the adulterant which caused thousands of cases of partial paralysis from drinking bootleg Jamaica ginger, known as "ginger jake."

A new chemical method of standardizing ergot, widely used in childbirth, was devised by Dr. M. L. Smith of the National Institute of Health, formerly the U. S. Hygienic Laboratory.

A large increase in the number of cases of infantile paralysis, almost reaching epidemic proportions, occurred during the fall of 1930.

An occupational disease causing an involuntary to and fro shifting of the eyes was found among train dispatchers by the Industrial Health Conservancy Laboratories of Cincinnati.

The time required for blood to clot, vitally important in surgical operations, is shortened by feeding the patient vitamin D, it was discovered.

Study of the chemical changes taking place in the brain was made possible for the first time through a technical procedure developed by Dr. Abraham Myerson of Boston, whereby blood is taken from the artery leading to the brain and from the vein which drains the brain and the chemical contents of the two samples compared.

New hope for recovery of child victims of serious burns was given by a treatment, making use of a tannic acid solution, devised by Dr. Edward C. Davidson of Detroit.

Radio waves, shorter than those commonly used for sending messages, are able to weaken materially the poison elaborated by the diphtheria bacillus, it was discovered by Drs. Waclaw T. Szymanowski and Robert Alan Hicks of the Western Pennsylvania Hospital Institute of Pathology.

A new method for measuring the heart's output of blood by determining the amount of acetylene gas taken up by the lungs in a certain time was devised by Dr. Arthur Grollman of the Johns Hopkins University.

An international birthday party, with the celebrations round the world united by radio, was given in honor of the 80th birthday on April 8th of the "dean of American medicine," Dr. William Henry Welch.

The three hundredth anniversary of the first use of cinchona bark, from which quinine is obtained for the treatment of malaria, was celebrated.

To study the problems of the American child, scientists from all over the country at call of President Hoover met in a White House Conference on Child Health and Protection, at Washington, November 19th to 22d.

The flarimeter, an instrument which will disclose whether a person has heart disease in advance of serious developments by measuring shortness of breath, was demonstrated by Dr. P. V. Wells, of Newark, N. J.

A new barbituric acid derivative, the sodium salt of isoamylethylmalonylurea, was discovered and found to be valuable to the surgeon in producing a state just short of deep sleep.

Calcium gluconate, formerly only a laboratory curiosity, was discovered to be an effective medicine.

PHYSICS

The theory that the sun is lighted like a giant electric bulb by electricity under pressure of ten million volts flowing from inside the sun and heating its atmosphere to incandescence, was advanced by Dr. Ross Gunn, U. S. Naval Research Laboratory.

A new physical concept, the paradoxical one that two separate particles of matter can be completely identical, was enunciated by Prof. Gilbert N. Lewis, of the University of California.

That space is not empty but filled with electrons of minus or negative energy, was suggested by Dr. P. A. M. Dirac of Cambridge University, England.

The possibility that the whole universe is fading away so that in some timeless future no matter will remain, only radiation, was indicated by calculations made by Dr. Louis S. Kassel, of California Institute of Technology.

The theory that cosmic rays are not rays at all but high velocity particles was advanced by two German physicists, Dr. Walter Bothe of Berlin and Dr. Werner Kolhoerster of Potsdam, as a result of experiments they have conducted with a specially built adaptation of the electron counter, but researches of Dr. R. A. Millikan on the intensity of cosmic rays near the north magnetic pole provided evidence against the theory.

The theory that cosmic rays consist of high-velocity particles, like tiny bullets, was supported by experiments conducted by Dr. L. F. Curtis of U. S. Bureau of Standards in which he used two electron counters.

A clock which will set itself in response to radio time signals was developed by H. C. Roters and H. L. Paulding of the Stevens Institute of Technology.

A new type of clock controlled electrically by a vibrating crystal, thus dispensing with a pendulum, has been developed under the direction of Dr. W. A. Morrison, of the Bell Telephone Laboratories.

A device for measuring the intensity of ultraviolet rays by means of an ultraviolet-sensitive photoelectric cell connected with a condenser, which as it discharges operates a counter, was developed in the research laboratories of the Westinghouse Lamp Co.

Artificial gamma rays, which may take the place of radium in the treatment of cancer, are produced by a giant vacuum tube operating at 700,000 volts, at the California Institute of Technology.

A method for stopping a locomotive with the reflected light from its own headlights caught on mirrors on the signal post and focussed by them on a series of light-sensitive cells was demonstrated in Germany.

Alternating electric current is more dangerous at low voltages than at high, it was discovered through experiments on rats at Johns Hopkins University: with the ordinary house potential of 110 volts, 100 milliamperes will cause death.

Electric current direct from sunlight was made possible through the invention of Dr. B. Lange, of the Kaiser Wilhelm Institute for Silicate Investigation, of a new type of cell containing copper oxide between two layers of metallic copper.

A method of taking photomicrographs by long wave ultraviolet light through an ordinary glass lens, was discovered by Dr. A. P. H. Trivelli, of the Eastman Kodak Co., and Leon V. Foster, of the Bausch and Lomb Optical Co.

PSYCHOLOGY AND PSYCHIATRY

Slow motion pictures enabled Dr. Knight Dunlap and G. H. Mowrer of Johns Hopkins University to analyze the motion of a chicken's head in walking and to find that the head jerks forward only, serving to give the fowl clearer vision.

The First International Mental Hygiene Congress met at Washington from May 5th to 10th with 2,000 specialists in attendance.

Diseases suffered during childhood set a definite mark on personality, Dr. H. W. Newell of Richmond, Va., found by a study of identical twins.

A psychiatric service to assist judges in determining sentences of convicted offenders was recommended by the committee on psychiatric jurisprudence of the American Bar Association.

Mental disease shortens life to a startling degree, it was found by Dr. Neil Dayton and Dr. Carl Deering, of Boston, who discovered that the individual's expectation of life is reduced two-thirds by psychoses.

Statistical methods applied to psychiatry by Prof. Thomas V. Moore, of the Catholic University of America, in an effort to chart exactly the symptoms of various mental diseases, determined the existence of 41 different symptoms.

Genealogical studies at the German Research Institute for Psychiatry, Munich, reported by Prof. E. Rudin, showed that among families having one parent afflicted with maniac-depressive insanity, at least a third of the children will be similarly afflicted, and another third will be otherwise mentally abnormal.

In a study of motormen involved in traffic accidents, Dr. O. M. Hall, of the Personnel Research Federation, found that practically half had health defects, chiefly abnormal blood pressure and hernia, and 39 per cent had personality defects.

RECOGNITION AND AWARDS

The 1930 Nobel Prize in medicine was awarded to Dr. Karl Landsteiner of the Rockefeller Institute of Medical Research for the discovery that human blood is of four different types and that blood of one type does not always mix with blood of another type.

The Nobel Prize in chemistry was awarded to Prof. Hans Fischer of Munich for his achievement in the laboratory production of hemin, one of the components of hemoglobin, the red coloring matter of blood.

Dr. George H. Whipple of the University of Rochester and Dr. George R. Minot of Harvard University Medical School shared the first $10,000 Popular Science annual award given in recognition of their discovery of a successful treatment of pernicious anemia by the liver diet.—*Medical Searchlight.*

EXFOLIATIVE DERMATITIS

(Concluded from page 26)

DISCUSSION

DR. P. W. TOMLINSON (Wilmington): I should like to comment on one point there, and that is whether the arthritis mentioned in the doctor's patient was a result of syphilis. I have seen a good many cases of arthritis and never yet have I seen one where there was a previous history of syphilis. Arthritis arises from many causes, and it is a question in my mind whether the syphilis had anything to do with the arthritis in this case.

DR. B. S. VALLETT (Wilmington): I should like to ask Dr. Scull whether he attributes the rash to the bismuth or the arsenic.

DR. C. B. SCULL, JR.: In regard to the question of Dr. Tomlinson, after the patient had received a number of injections of arsphenamine for his syphilis, the symptoms of arthritis cleared up. He had involvement of practically all of his joints at first, but in spite of all of the injections which he has had, which number well up into the eighties, he still has arthritis of one joint. That looks as though syphilis is not the cause of that arthritis, anyway.

In regard to the second question, whether the bismuth was the cause of the rash or the arsenic, I can't say, because he had had sixty injections of arsenic in succession; whether the bismuth served to act as something to stir up the arsenic or to react with the arsenic, I am unable to say.

The Wickersham Report

After more than eighteen months of careful consideration of many questions having to do with the enforcement of prohibition, the Wickersham Commission on January 20 presented to the President of the United States its report on this subject. Although disagreeing radically on many other phases of the subject, the commission was unanimous in its decisions concerning the relationship of the medical profession to the prescribing of alcohol and of alcoholic liquors for the treatment of disease. Indeed, it recommended unanimously the removal of the causes of irritation and resentment on the part of the medical profession resulting from the enforcement of the Volstead Law in its interpretation of the Eighteenth Amendment. The commission listed three main objects to be achieved so far as the medical profession is concerned in this legislation: (*a*) Doing away with the statutory fixing of the amount which may be prescribed and the number of prescriptions; (*b*) abolition of the requirements specifying the ailment for which liquor is prescribed on the blank which goes into the public files, and (*c*) leaving as much as possible to regulations rather than fixing details by statute. These are the principles for which the medical profession has fought ever since prohibition became the law of the nation. They represent a recognition by the commission of the fact that the practice of medicine is the duty of the medical profession and not the privilege of Congress. They recognize the age-old principle that it is within the province of the physician licensed to practice by the state to prescribe for his patient anything which he feels is for the good of the patient and in such quantities as he feels are necessary in order to secure certain effects. The Wickersham Commission will have the gratitude of the medical profession for its logical consideration of these subjects.—*Jour. A. M. A.*, Jan. 24, 1931.

HYPERGUANIDEMIA IN TETANY

In a patient with the clinical manifestations of tetany, Eugene F. Traut and Robert P. MacFate, Chicago (*Journal A. M. A.*, Jan. 24, 1931), found that the calcium of the blood was quantitatively always within normal limits. The guanidine bases in the blood were always increased. Either calcium or parathyroid extract-Collip controlled the attacks. Since hyperguanidinemia has been found in parathyroidectomized animals, they suggest that possibly its presence in human tetany has an etiology significance.

The Curricula of Training Schools for Nurses

A great deal has been written and said, and an increasing adverse attitude is being manifested, against the curricula of training schools for nurses. The lectures are given to the pupil nurses, to the greatest extent, by a selected group from the hospital staff. The outline of the course of lectures is not determined by the staff or the executive personnel of the hospital, but in Pennsylvania and many other states, is definitely set forth by a state board that controls the registration of nurses.

It is openly stated by the nursing groups that a state board for registration of nurses should consist exclusively of registered nurses, that no physician should be on the board; that the physician has little or no knowledge of the administration of training schools for nurses, and is an obstructionist to some of the ideas that they are imbued should become effective. Some of these plans are not constructive, and are not always to the best interest of the one most concerned, the public, hence the medical member objects.

Naturally a physician on such a board would endeavor to guide the other members in the proper channel, but it is a hopeless situation, because the registered nurses on the state boards represent the nursing group, and therefore work valiantly and diligently to the end that the schemes of their group prevail. This is accomplished by the nurses outvoting the physician members. In some states the nursing groups have succeeded by legislative enactment in having the personnel of their state board consist entirely of registered nurses, as they wished nothing to do with the medical group being represented.

We are continually finding fault with the course of lectures outlined by many of the state boards for nurses. When one has, calmly and without bias, reviewed the prescribed courses, one cannot but appreciate the absolute ridiculousness of it all. The courses are becoming more and more scientific, to the detriment of the art of nursing. Practical nursing is losing the art that once it boasted. The scientific lectures, to the extent required, are unnecessary and uncalled for in a nurses' training school, in preparation for registered nurse. After the termination of her training should she desire to enter special fields, the nurse should take the necessary addi-

tional academic work demanded by the special field of endeavor.

Medical education had been put over the hurdles to such an extent that every graduate was being turned out an all around specialist, at the expense of the preparation which he should have had, namely, for general practice. And too, scientific medicine was in the ascendency, and the art of medicine was becoming a lost art. A reversal in medical education has taken place, so that now the student of medicine is being prepared for the general practice of medicine, and after graduation should he elect a special field, then he may take the additional course of instruction exacted to practice the specialty. And too, it is worthy of note that the art of medicine is being restored. The revamping of medical education was deemed requisite and necessary, and is being accomplished, but nursing education, like the Chinese express, is running wild without anyone in control at the throttle.

The type of examination questions demanded by the curricula of nurses' training schools is a matter of continual comment by the medical profession. Please bear in mind that the applicants admitted to medical schools today, to the greatest extent are selected from the groups having three and four years of collegiate preparation, whereas applicants for nurses' training schools are required to have only from one to four years high school credits, depending upon the requirements of the state board. With the entrance requirements in mind, it would seem absurd to review the unreasonable demands of the state boards for registration of nurses, in regard to required courses of lectures. We have heard instructors in medical schools, who lecture in nurses' training schools, say that they have given questions to medical students selected from the questions given to the nurses, and were surprised how the medical students had failed to answer them properly. The nurses too had failed to answer satisfactorily all the questions. How can nurses be expected to answer questions that are puzzling to medical students? There is something radically wrong in the state board requirements for the course of instruction in a nurses' training school. The student nurses are being prepared to such an extent that they do not seem to realize the dividing line between nursing and the practice of medicine, and too frequently, especially in industrial nursing, they openly and flagrantly practice medicine.

We reproduce here an article that appeared in the Clearfield County (Pa.) Medical Society Bulletin for December, 1930.

WHY OUR DAUGHTER DID NOT COMPLETE HER NURSING COURSE

There has been a great deal of discussion in current medical journals as to what branches of the medical science and how much of it should be taught in the training schools for nurses. It is generally believed that too much time is spent in classrooms and not enough in the hospital wards. Below is a copy of an anatomy examination given to a first year class of nurses to determine whether they were qualified to continue their training course. It is not known how many of them passed the examination, but if they did, and the other subjects taught them were as difficult, they should have been given a license to practice medicine.

1. Name the systems of the body. Classify tissue and give an example of each class.
2. Describe the spinal column.
3. Classify muscles; give one example of each class. Name two principal muscles of the arm and state their function.
4. Describe the lungs. What takes place as a result of pulmonary circulation?
5. List the functions of the blood. Compare the structures of an artery, vein, capillary; what blood does the portal vein carry to the liver?
6. Discuss in detail the thoracic duct.
7. Name the enzymes of the pancreatic juice and give the function of each one.
8. Name the principal nerve center of the body and the parts that compose it.
9. Name the excretory organs of the body and give the principal waste products excreted by each.
10. Describe one serous cavity of the body.
11. Define the following: Metabolism, lymph, omentum, foramen, fossa, process, condyloid, sagittal.
12. Describe and locate the temporal bone.
13. List the ductless glands and state the supposed function of each.
14. Name the organs contained in the female pelvis and state the function of each. Describe fully one of these.

As stated these constitute questions given in one subject only, anatomy, but will afford an idea of the type given in the remaining subjects. How many of our medical readers can satisfactorily answer all the questions herewith given, which please remember were for first year pupil nurses?

Who is to blame for the condition of affairs herewith set forth? The medical profession should admit its guilt. It is responsible for not having controlled the affairs of nurses' training schools, in all respects, and should have been on guard in the legislative halls. How long is this condition of affairs to continue before organized medicine will lend its co-operation to aid in its correction?—Editorial: *Pa. Med Jour.*

The Nurse to Fit the Case

Physicians are stressing more and more the need, in present-day medicine, for the nurse who fits the case—that is, for nurses who have a firm foundation of specific and sufficient training in the particular types of disease they may be called upon to care for.

This growing demand for specialized nursing care in pediatrics, orthopedics, and other branches of medicine, is evident in the findings of the Committee on the Grading of Nursing Schools, which is studying the problem of educating the nurse to meet the requirements of patients and doctors.

Typical of this demand is the discussion, in the most recent report of the College of Surgeons on Hospital Standardization, of the minimum requirements of a hospital department for the treatment of eye, ear, nose, and throat diseases.

"In the work of these specialties," the report states, "the results produced so often depend on intelligent co-operation between the physician and the nurse, that a high standard of nursing service is absolutely essential. . . . It should be done by women who are specially trained in this work, and particularly competent to intelligently carry on the technique and recognize untoward signs and symptoms in the nursing of the patient."

At least fifteen per cent of all types of physicians, including the general practitioners, of a representative group of 4,000, want the nurse to have familiarity with a particular disease, it was found by the Grading Committee. The proportion, when the physicians were grouped by specialties, was found to be far higher than this among the neurologists, the obstetricians and the ophthalmologists. This is significant in view of the fact that recognition of the value of specialized nursing care in treating particular diseases, is comparatively recent.

Typical comments from physicians, showing a real need for nurses especially fitted to care for certain types of cases, were:

"The graduates of our local hospitals have no real training for children's work—cannot take the pulse of an infant, do not know how to put up formulae." "The nursing problem in obstetrics is very acute." "There are not enough really well-trained psychiatric nurses for private duty."

There is a significant and close correlation between the practical experience in the basic services given to the student nurse in the training schools, and the subsequent satisfaction of physicians employing her as a graduate.

The surgeons, for example, were found to be the group most contented with the quality of nursing they can obtain for their patients. In the 1397 training schools reporting on the activities of their students, by far the greatest amount of student time was spent in the surgical wards—often at the cost of reducing time spent in the other branches of nursing care.

On the other hand, the pediatricians and the neurologists frequently express a lack of nurses who have had specific training in caring for their type of patients. In many schools, these services are slighted in the training of student nurses, and far less time is spent in ward practice among these cases than is the minimum requirement for a proper foundation of knowledge on the part of the prospective graduate trained nurse.

The better schools of nursing are meeting this problem of training the nurse to fit the demands that will be made upon her, by making out a well-planned curriculum of both theoretical and practical training and carefully assigning hospital duties to the student nurse.

This embraces the teaching of the basic sciences in class and laboratory, and a well-balanced division of ward practice during the thirty-six months of training, to give the student nurse a good grounding in the medical, surgical, obstetrical, and pediatric services, and at least some experience with nervous and contagious diseases.

That nurses themselves realize the need for specialized training is evidenced by the fact that there is a growing tendency among them toward taking post-graduate courses, after the full term of training has been completed, in such work as pediatric and psychiatric nursing.

The proper assignment of duties in the hospital to the student nurse, in order to insure sufficient experience in the major services, is still, however, neglected in many schools. As a result, the fact that a nurse is a graduate of an accredited school is as yet no guarantee that she has sufficient training in the basic types of disease to make her as valuable as she might otherwise be to patient and doctor.

The fear of being unable to cope with the job, because of lack of sufficient training, is one of

the major reasons why nurses "register against" certain types of cases.

Physicians rarely find that no nurse is available when they want one, but they cannot always get the kind of nurse they feel is particularly needed for the case. An average of two calls a month, per physician, it was found, are refused at the registries. Though some of these refusals were for Sunday or night calls, fully twenty-eight per cent were refused because nurses register against such cases as maternity, pediatric, contagious, G. U. and mental. This "registering against" also checks with findings on the students' training, for the experience given in the schools in caring for patients with these types of disease, as has been said, is often inadequate.

It seems probable, therefore, that nurses who "register against" certain cases come from schools that

(1) Have not enough patients to afford a proper scope and variety of bedside experience.

(2) Give students lop-sided training; too long assignments in one service, too short in others.

(3) Do not give sufficient background for knowledge of the care and treatment of certain diseases in the theoretical part of training.

(4) Do not provide adequate supervision of the students' work by graduate nurses.

(5) Use the students' time for non-educational "chores."

(6) Give the students too many patients to care for at once, so that they have no time to give them more than routine care, or to think about their work.

A sound, standardized curriculum of ward practice, as well as of theory, it is believed by the Grading Committee, will go far toward producing the nurse to fit the case.

The present Standard Curriculum for a three-year course, approved by the National League of Nursing Education, allows for:

5 months medical service (includes general medical wards and diet kitchens)

6 months surgical service (includes general surgical, gynecological, urological, orthopedic wards, and operating rooms)

3 months communicable diseases (includes work in special divisions for contagious diseases, tuberculosis, and venereal diseases)

3 months pediatrics (includes infant feeding)

3 months obstetrics

2 months psychiatric and neurological diseases

1 month eye, ear, nose, throat, skin or other specialties.

Reducing Prison Population By Bringing Science to Court

If facilities for physical examinations and for psychiatric study could be made available to juvenile and criminal courts throughout the United States it would be possible to materially reduce the prison population, states the recently published Year Book of the National Probation Association.

The Court, with the aid of physicians, psychologists, and trained probation workers, is enabled to identify the apparently incurable delinquents and save the state the cost of keeping others.

"Psychiatry," comments the Year Book, "greatly facilitates the work of the judge. The establishment of court clinics or psychiatric services in connection with courts is receiving special attention not only from psychiatrists but from such groups as the American Bar Association. The American Bar Association recommends that there be available to every criminal and juvenile court, a psychiatric service to assist the court in the disposition of offenders, and that no criminal shall be sentenced for felony in any case in which the judge has discretion as to sentence until there has been filed a psychiatric report as a part of the record.

"Unfortunately there are today not more than ten or twelve juvenile courts in our country with their own psychiatric clinics. Many courts utilize community child guidance or mental hygiene clinics, but these are usually able to accept only a limited number of juvenile court cases.

"Probation has been found successful only to the extent that it has recognized medicine, psychiatry, psychology, neurology and sociology and used these sciences in individual cases of misconduct. If 10 per cent or 20 per cent or even higher averages do not respond to probation and commit acts injurious to the community, it can be attributed to no other factor than that of the failure to determine by scientific processes

immediately after the conviction of the offender, that he is not amenable to probation."

To improve the treatment of court offenders in the criminal and juvenile courts of the country, the National Probation Association, in its 1930 Year Book presents five recommendations:

First, facilities for physical and psychiatric examinations for all courts dealing with problem children and early offenders.

Second, the appointment to court positions of only judges and probation officers who are trained and qualified by experience and personality for the job in hand.

Third, the establishment of state probation departments or bureaus in order that the work of court and probation departments may be standardized and rendered more effective. "Justice," states the Year Book, "can never be truly meted out until juvenile courts and probation are developed on a state-wide basis granting assistance to the rural regions as well as to the cities."

Fourth, the improvement and standardization of laws relating to delinquency and crime prevention.

Fifth, the extension of methods and processes of the juvenile court to the treatment and disposition of offenders over the age of 16 or 18 years as now generally provided by law.

The President of the National Probation Association is George W. Wickersham, Chairman of the National Commission on Law Observance and Enforcement, and its General Secretary, Charles L. Chute.

BOOK REVIEWS

Modern Surgery. By John Chalmers Da Costa, M. D., Professor of Surgery, Jefferson Medical College, Philadelphia. Tenth Edition. Pp. 1404, with 1050 illustrations. Cloth. Price, $10.00. Philadelphia: W. B. Saunders Company, 1931.

This old "war horse" of the one-volume surgical texts made its debut in 1894, since which time it has run through nine revisions, and in addition thirty reprintings, the most eloquent proof in the world that here is a real book. This (tenth) edition is the first since May, 1925, and includes all the newest work and ideas. As heretofore, it is a textbook of surgical diseases that includes some orthopedics, and considerable urology (but no gynecology), together with operative technique. The entire revision has been made by Dr. Da Costa personally, except Dr. Jackson's section on bronchoscopy, which remains unchanged. We have not the space to review the work critically, but among the chapters that stand out conspicuously are those on tumors, the head, fractures, and anesthesia. The work is as encyclopedic as it is possible to be; in fact, we feel that Da Costa "says more" than any other one-volume text, and what he says is authoritative.

The illustrations are exceeding well done, and include many new ones, some in color. The index is one we have always regarded as a model, and makes the whole work instantly accessible. For a work that has been completely reprinted there are remarkably few typographical errors, none of which are confusing. This book has ranked, and as long as Dr. Da Costa lives will continue to rank, as one of the three greatest surgical texts in the English language.

Traumatotherapy. By John J. Moorhead, M. D., Professor of Surgery, New York Post-Graduate Medical School. Pp. 574, with 625 illustrations. Cloth. Price $7.00. Philadelphia: W. B. Saunders Company, 1931.

Dr. Moorhead's new volume, supplanting his "Traumatic Surgery," gives in great detail the treatment of the injured, and includes, besides the necessary surgery involved, a mass of medical treatment. The volume is amazingly meaty; the style terse and logical. Perhaps the most important chapter, especially for the younger men, is the one on Medico-legal Aspects, which is full of sound advice. This excellent book should have a wide circulation.

Abdomino-pelvic Diagnosis in Women. By Arthur John Walscheid, M. D., Obstetrician and Gynecologist, Broad Street Hospital, New York City. Pp. 1000, with 398 illustrations. Cloth. Price, $12.50. St. Louis: C. V. Mosby Company, 1931.

This book is a clinical monograph, limited solely to diagnosis, and is not intended for undergraduate students, but for practitioners of some experience and for post-graduate students. It is based on anthropologic studies, and is divided into a general section, dealing with general causal factors, etc., and a special section, dealing with the individual areas and organs. Clinical histories, typifying interesting cases, or cases difficult to diagnose, are interspersed. The text is well written, with an interesting style. The use of more bold-faced type would make the text more available. The book is most complete, and admirably fulfills the author's purpose; the somewhat limited purpose, however, will restrict its popularity.